



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,093	02/20/2004	Wounjhang Park	226251	6898
23460	7590	11/29/2005	EXAMINER	
LEYDIG VOIT & MAYER, LTD TWO PRUDENTIAL PLAZA, SUITE 4900 180 NORTH STETSON AVENUE CHICAGO, IL 60601-6780			LE, HOA T	
			ART UNIT	PAPER NUMBER
			1773	

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/784,093

Applicant(s)

PARK ET AL.

Examiner

H. T. Le

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 36 and 37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 36 and 37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. **Claims 1-7, 36 and 37 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 15-28 of U.S. Patent No.**

6,699,523. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims and the patent claims are directed to the same product having the same structure and properties. The only difference is the wordings. The patent claims recite process limitations while the instant claims recite product limitations.

However, the process limitations of the patent claims would necessarily result in a product having product limitations as recited in instant claims.

Claim Rejections - 35 USC § 102

4. Claims 1-7 and 36-37 are rejected under 35 U.S.C. 102(b) as being anticipated by the Nishio patent (US 5,856,009).

Claim 1: Nishio et al disclose a luminescent phosphor particle comprising an uncoated phosphor coated with a rare-earth oxide. See col. 4, lines 30-33 and 35-39. The coating is continuous and uniform because the Nishio patent discloses that the coating makes the surface of the phosphor particle “smooth” to allow the second coating film to be “fine” and “free of pin holes” and allow formation of the second coating film at a small thickness. For all these conditions to be met, “smooth” coating surface which allows another coating on it to be “fine”, “free of pin holes” and thin, the coating must necessarily be continuous and uniform. In addition, the coating is characterized as a “coating film” which suggests that the coating is continuous (i.e. non-particulate). An annealing step is applied after the phosphor is coated with a coating at a temperature from 600-900 °C (Nishio, col. 5, lines 4-7 and 12-15). This annealing temperature is high enough to crystallize the oxide coating, and thus the coating comprises crystalline oxide including yttrium oxide.

Claims 2-6: See col. 6, lines 15-16.

Claim 7: See col. 6, lines 36-38.

Claims 36-37: No explicit report as to the thickness of the coating; however the coating method of the first coating as described in the Nishio patent, the resulting coating thickness cannot be more than 50 nm.

5. Claims 1 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by the Ranby patent (US 4,396,863).

Claim 1: See claim 1. The coated phosphor is then subject to heat treatment at 200-800 °C which is high enough to cause crystallization of the rare earth oxide contained in the coating. Thus, the coating taught by Ranby comprises crystalline rare earth oxide. The coating is also uniform because of the heat treatment. Heat treatment is a method known to cause a coating to become uniform. This known fact is also recognized in the present specification at page 9, lines 15-23. The coating is continuous because it forms a film, not powder coating.

Claim 7: See examples 1- 2 where yttrium oxide is used in the coating.

Claim Rejections - 35 USC § 103

6. Claims 1-7 and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of the combined teaching of the Dodds patent (US 4,398,119) and the Nishio patent (US 5,856,009).

Claim 1: The Dodds patent teaches a method of coating metal oxide layer on a phosphor particle by vapor deposition to obtain a continuous and uniform coating. See Dodds, col. 2, lines 30-40. The Dodds patent does not explicitly suggest yttrium oxide as the coating

material, but does teach coating comprising various metal oxides. See Dodds, col. 3, lines 17-20. The Nishio patent teaches a coating of metal oxides including yttrium oxide on a phosphor particle. Therefore, it would have been obvious to employ yttrium oxide as the coating material in the coating method taught in the Dodds patent because the Nishio patent suggests that all metal oxides are functionally equivalent as a protective coating on phosphor particle.

Claims 2-6: See Dodds, col. 3, lines 10-14; and Nishio, col. 6, lines 15-16.

Claim 7: See Nishio, claim 2.

Claims 36 and 37: See Dodds, col. 3, lines 61-62 and claim 10.

Response to Arguments

7. Applicant argued that the coating taught in the Nishio patent is not uniform because it would contain at least two different types of material, namely oxide and nitride, “immediately in contact with the surfaces of the phosphor particle”. Applicant appeared to recharacterize Applicant’s own invention to present the claim language “uniform” as “chemically uniform” or “compositional homogeneous”. The term “uniform”, however, as expressed in the instant disclosure simply denotes thickness uniformity. At page 9, lines 15-23, it is stated that: “The surface coated phosphors of the present invention are free or substantially free of bridging or agglomeration between the particles. If desired, the coating can be further refined by suitable post-treatment. For example, any crack in the coating can be healed or any broken bridge 20 area can be rounded off by increasing the heat treatment temperature. Up to the termination of the of crystallization range, heat treatment causes the

coatings to become more uniform.” Based on this context, “uniform” means thickness-wise uniform, not compositionally or chemically uniform as interpreted by applicant.

Applicant argued that the coating taught in the Ranby patent cannot be uniform because “precipitates (as formed in Ranby et al.) tend to be non-uniform or spotty.” Note that the coated particles taught in the Ranby are further subject to heat treatment at 200-800 °C (col. 2, lines 13-16). Heat treatment is a method known to cause a coating to become uniform. This known fact is also recognized in the present specification at page 9, lines 15-23.

8. Upon further review, the rejection based on the Okada patent is hereby withdrawn because the Okada patent does not teach a rare-earth coating on phosphor particle, but rather phosphor particles dispersed in a binder comprising rare earth metal to form a coating composition.

9. References not relied upon are cited as art of interest.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. T. Le whose telephone number is 571-272-1511. The examiner can normally be reached on 10:00 a.m. to 6:30 p.m., Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'H. T. Le', with a stylized, cursive flourish at the end.

H. T. Le
Primary Examiner
Art Unit 1773

Nov. 25, 2005